

ISE Quarterly



At Eastern Connecticut
State University

The newsletter of the Institute for Sustainable Energy at Eastern Connecticut State University



Eastern's Earth Day Celebration

By Chris Heneghan

On April 20, 2005 students and members of the surrounding community gathered at Eastern to celebrate sustainability and the preservation of the planet for future generations at an Earth Day Celebration.

Sponsored by the university chapter of Roots & Shoots, in conjunction with the Institute for Sustainable Energy, the day featured live music and insightful commentary from environmental speakers on a solar powered stage. In addition to the entertainment, environmental groups from the surrounding area and student clubs

had booths set up where students and the community could learn more about these organizations efforts to foster an eco-friendly society.

Mark Skinder from the Great New England Renewable Energy Show supplied the event with renewable energy generated by the Energy Van - a converted box truck with solar panels and a wind turbine mounted on the roof.

Amidst the festival environment, attendees had an opportunity to learn more about critical issues impacting the planet, its natural resources and global sustainability.

Free t-shirts were given away to participants who signed up to take the 10% Challenge. Sponsored by the Alliance for Climate Action, the ten percent challenge is an interactive on-line survey that provides people with information on how they can reduce their ecological footprint by lowering their greenhouse gas emissions by at least 10 percent. Over 125 people signed up to take the challenge.

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Eastern Students Establish Roots & Shoots Chapter

By Chris Heneghan

Roots & Shoots is an international organization committed to promoting global sustainability through educational outreach. Encouraging students from area colleges to form student-run chapters on their campuses was one of many topics of discussion at the first annual Green Campus Initiative. After a day of collective brainstorming with students and faculty from twenty Connecticut colleges and universities, a group of environmentally-conscious students at ECSU decided form a Roots & Shoots chapter on the Willimantic campus.

**"I thought that the club would be a great way to get students together to implement positive change."
- Stacie Smythe**

Following in the footsteps of students at Western Connecticut State University where a Roots & Shoots chapter has been in operation for eight years, Stacie Smythe led the campaign for the new chapter. Smythe, an Earth Science major at ECSU, described her motivation for forming the campus chapter



saying, "I thought that the club would be a great way to get students together to implement positive change. Currently we have about 10 members. I hope that we will be able to reach out to the campus community and interest more students in what we are doing."

Roots and Shoots was founded in 1991 by Dr. Jane Goodall and 16 of her students working in Dar es Salaam, Tanzania. The organization's mission is to, "foster respect and compassion for all living things, [by promoting an] understanding of all cultures and beliefs and [inspiring] each individual to take action to make the world a better place for animals, people and the environment." Over the past 14 years Roots & Shoots has managed to convert its message into an international movement for an eco-friendly world. There are currently more than 6,000 Roots & Shoots chapters, registered in over

eighty-seven countries, ranging in size from two to 2,000 members.

Members of the ECSU chapter are planning to volunteer with Windham Area Interfaith Ministry Project (WAIM) to help those in need in the local community. They also worked to organize an Earth Day celebration on campus this spring, and will lend their support to the WCSU chapter to help with ongoing projects. • ISE

For more information about Roots & Shoots, visit www.rootsandshoots.org.

For more information on WAIM, visit: www.waimct.org.

Green Campus Initiative: Progress Report 2004-2005

By Jason Taraskiewicz

"Greening Eastern, One Step at a Time"

President Carter committed Eastern to the concept of sustainability by signing the Talloires Declaration in the spring of 2004. This Declaration commits the university to taking action on the campus to develop policies and practices that promote environmental stewardship. Dr. Carter took steps to fulfill this commitment by forming a Green

Campus Initiative committee in May of 2004 and encouraging administrators, faculty, staff, and students to develop ways to "green" Eastern.

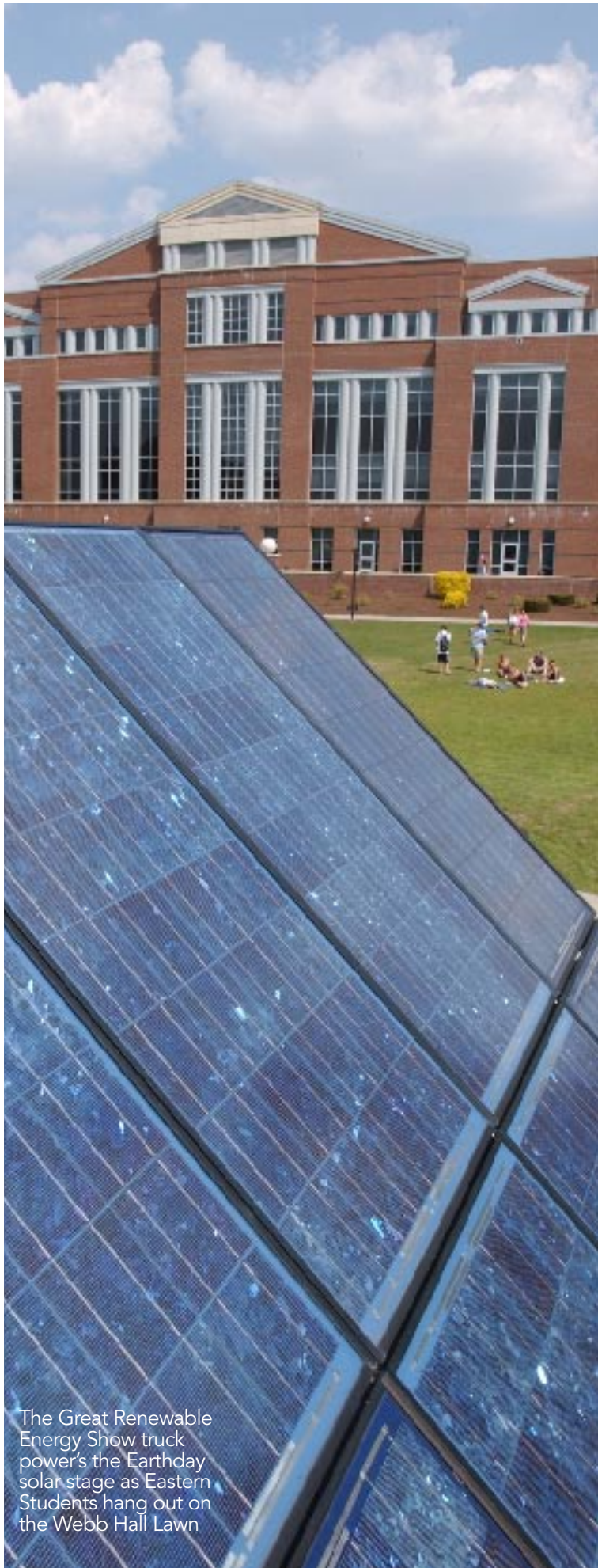
The Green Campus Initiative committee met for the second time in May 2005 to review the progress made over the past year. The committee examined how the university fared in meeting its sustainability goals, and determined that Eastern has made significant progress towards our goal of a more sustainable campus. The areas that

saw the most improvements included education, student involvement and facility operations with these achievements:

- The Sustainable Energy Studies minor and Environment Management certificate were added to the undergraduate program. Dr. Fred Loxsom was appointed Chair of Sustainable Energy Studies, and sustainability concepts were added to the EES 104 curriculum.

- A University Hour and a Lunch and Learn program provided information to faculty and students





The Great Renewable Energy Show truck power's the Earthday solar stage as Eastern Students hang out on the Webb Hall Lawn

Earthday 2005

Organizers hoped the day would help inform the student body and members of the community of the efforts under way to make ECSU a green campus, as well as educate them on many ways they can help foster the vision of earth-friendly actions in their daily lives. Attendees had the opportunity to tour the facilities on the campus that make ECSU a unique part of the international green campus movement. These tours gave participants a look at the new LEED designed SRV-1 residence hall, the Arboretum, the new solar photovoltaic installations on campus, and the Institute for Sustainable Energy.



Eastern students look at the motors of the hybrid powered Toyota Prius



A band plays on the Solar Powered Stage at Eastern's Earthday 2005

Sustainable Energy Studies program offered by the university; Lynn Stoddard, from the Connecticut CT DEP, on renewable energy available to consumers through the utilities; and Eric Germain, Environmental Coordinator at ECSU, on the campus recycling program.

Performers included singer-songwriters Lisa Lawrence and Erica Miller, Mike Anderson and Peggy Haney, the Umoja Steppers Dance and Drill Troupe, local jam band Homestar, and the Naughty Jungle of Love.

Speakers for the day included Dr. David Carter, President of Eastern Connecticut State University, on his vision of a green university campus; Mark Skinder, from the Great New England Renewable Energy Show, about his work with the Energy Van; William Leahy, Chief Operating Officer for the Institute for Sustainable Energy, on regional Climate Change and sustainability initiatives; Dr. Fred Loxsom, Endowed Chair of Sustainable Energy Studies at ECSU, on the

Community organizations participating in the celebration included the Willimantic Gardening Club, The Storrs Farmers Market, The Connecticut Chapter of the Sierra Club, the Willimantic Food Co-op, People's Action for Clean Energy, the CT Department of Environmental Protection, Smart Power, the Connecticut Clean Energy Fund, and the Connecticut Climate Change Coalition. • ISE

Eastern Goes BioFuel

By Ben Rach

The roots of Biofuel reach back into the late 1800's, when an engineer by the name of Rudolph Diesel attempted to develop an efficient engine to run on a non-petroleum based fuel, or Biofuel. He developed an engine that used pressure, steam and an igniter from a glow plug to run. His original fuel was not petroleum, but vegetable oil. With crude oil exceeding \$60 a barrel, Biofuel has migrated into many new uses, including heating oil.

Biofuel is unique in that it is renewable, carbon neutral, and biodegradable, unlike fossil fuels.

Biofuel is accessible today, unlike some of the newer energy technologies such as hydrogen fuel cells which are still in development. Biofuel is, however, limited because it requires large amounts of land to grow the seeds or beans for the production of the oil. Biofuel is often mixed in varying proportions with petrodiesel (#2 fuel oil) to produce what is called a bio-diesel blend. It has been demonstrated that, when

used in transportation, burning a mixture of 20% biofuel and 80% petrodiesel, commonly known as B20, hydrocarbon emissions are lowered by 20%, carbon monoxide (CO) emissions by 12%, and emissions of particulate matter by



Soybeans are a source of biofuel
Credits: National Renewable Energy Laboratory

12%. Emissions of Nitrous Oxides (NOx) increase by 2%, but many diesel engines can be calibrated to compensate for this.

Overall emission reductions in diesel transportation engines burning B20 have moved some states, including Connecticut to begin testing with biodiesel blends in the commercial and residential boiler units. Notably, the State of Maine currently heats 19 buildings with 10% biodiesel fuel blends

and the increased availability of biodiesel fuels has resulted in many Maine residents making the switch to heating with biodiesel in their homes. In March 2004, then Governor John G. Rowland and the Connecticut Legislature accepted the recommendations of the Connecticut Climate Change Action Plan which included a recommendation to run a Pilot Fuel-switching Project. Eastern was selected as the site for this project. In support of the university's mission to foster sustainability through the use of renewable energy sources, the CT Department of Environmental Protection provided supplemental funds to implement the project.

This summer, Eastern has begun preparations for the winter of 2005-2006 when it will be burning B20 in its South Campus boiler unit. The 100 horse-power boiler, is a common heating unit in many state buildings, public schools, and healthcare facilities, will provide heat and supply hot water to Shafer Hall; a combination classroom and office building, and Nobel Hall; a residence hall. The boiler will be cleaned, tuned, and emission tested on #2 diesel. The tank will then be drained, cleaned and filled with certified B20 ultra low sulfur Biodiesel blend and the boiler will be retuned to run on B20. The

boiler will then be re-tested. At peak season, during Winter Break, the boiler will be pushed to full-load and again emission tests will be performed. A final emission testing will be completed at seasons end in order to gauge the stack output after a season's usage. The emissions being tested for are CO₂, NO_x, CO, Particulate matter, and PAH's (Polycyclic Aromatic Hydrocarbons). In addition to emission testing, Eastern will also maintain detailed records of fuel usage, boiler run time and local weather conditions to help evaluate the boilers performance.

The objective of the program is to identify the regulatory steps needed for a facility to use biodiesel, and to gather data on the fuel efficiency and emissions associated with B20. With the data acquired, Eastern will provide educational outreach opportunities on Biofuel and verify the reductions in greenhouse gas emissions. If the program is successful, the state will be able to consider the benefits of having additional state buildings switch to B20 in coming years, in accordance with the recommendations of the Connecticut Climate Change Action Plan. For more information concerning the Biofuel pilot, contact Bill Leahy at the Institute for Sustainable Energy. • ISE

Green Campus Initiative *continued*

on the Green Campus Initiative. A Sustainable Energy Studies web site was created along with a library display on Sustainable Energy.

A chapter of the Jane Goodall Institute's youth outreach program, Roots & Shoots, was established at ECSU. This group has been active on campus and has sent representatives to regional and national conferences.

ECSU Earth Day 2005, sponsored by Roots & Shoots included tours of the Arboretum, ISE, the Geothermal Plant, SRV-1, and a table where 138 people signed the 10% Challenge, committing them to reducing their CO₂ emissions.

Students took a "hands on" approach to sustainability, developing a self guided tour of the Arboretum and producing a TV show on Sustainable Energy.

Student interns at ISE are helping develop a high school energy education program, completing municipal and campus benchmarking, producing a statewide public school energy efficiency study, and developing the SRV recycling program. Internships in Sustainable Energy Studies were offered for the first time.

The new SRV-1 Residential Hall was completed, built to LEED certification standards.

Improved landscape

irrigation was installed using grey water from SRV-1.

Solar panels to power emergency lighting were installed at bus stops, trash stations and on two residence halls.

Institutional recycling was expanded, including new exterior containers, computer recycling and the recycling of construction demolition materials from the new building sites.

The Facilities department suspended the use of all pesticide spraying.

The Green Campus Initiative committee also identified projects that will be initiated, and in some

cases, completed during the 2005-6 school year. These include adding courses to the Sustainable Energy Studies program, expanding the activities of the Roots and Shoot organization to involved more students with interest in the environment, the opening of SRV 2 & 3, conducting a biofuel project to heat Burr Hall and Shafer, and the expansion of recycling to include residence halls. Students, faculty and staff interested in getting involved in the Green Campus Initiative should contact the staff of the Institute for Sustainable Energy, or members of Roots and Shoots to learn more about opportunities to get involved.

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